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Nutrient dynamics of leaf litter of some major agroforestry species in the low country wet zone of Sri Lanka

Nutrient (P, K, Ca and Mg) release pattern of leaf litter of *Gliricidia sepium, Acacia auriculiformis, Acacia mangium, Macaranga peltata* (kenda), *Alstonia macrophylla* (hawari nuga), *Artocarpus*

integrifolia (jak), *Artocarpus altilis* (bread fruit), *Terminalia catappa* (Indian almond) and *Mangifera indica* (mango) was investigated, using litter bag technique. Litter bags containing litter from each species were arranged in a randomized complete block design with provisions for five sampling. Each treatment was replicated five times and the litter bags were retrieved at monthly intervals to determine decomposition and nutrient release.

Considerable interspecific variations in nutrient release pattern were evident among the litter types except for K. All the species except *A. altilis* released P during the first month of decomposition. *A. altilis* immobilized P, which amounted to 28% by 30 days where as *A. integrifolia* lost as much as 50% of its initial P content in litter. *M. peltata* showed fairly uniform P released pattern throughout the study.

All the species except *M. indica* lost more than 70 - 80% of its initial K content by 30 days. The loss of K was highest in *A. macro*phylla (90.61%) and lowest in *M. indica* (27.1%). K released from the leaf litter was more rapidly than other nutrients in all the studied species. As regards Ca, *G. sepium* showed the fastest release loosing over 60% of Ca during the first month while *M. indica* lost only 50% of initial Ca content even after 5 months. The percent loss of Mg in *A. auriculiformis* and *A. machrophylla* by 30 days was over 50%.
G.sepium decomposed very rapidly and released most of its nutrients within one month. On the other hand, *M. indica* decomposed relatively slowly and released its nutrients over a long period of time. If the nutrient release pattern of leaves is not synchronized with the nutrient uptake pattern of the crop, the potential loss of nutrients can be substantial. Thus, litter of these two species may compliment each other to make an ideal litter for efficient nutrient supply. Therefore, it is very important to identify right combination of agroforestry species for sustained crop production in agroforestry systems.